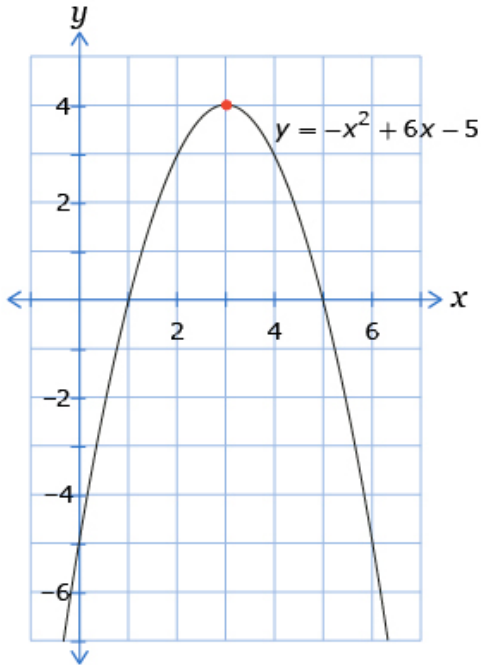


Solve Quadratic Equations by Factoring

The solutions to a quadratic equation, when $y = 0$, are called the

Ex. 1 - Solve by Factoring - AC Method

Ex. 2 - Solve by using the zero-product property.

**If either factor equals 0, the equation equals 0.

$$(4x + 1)(x + 9) = 0$$

You Try 3 $(2x - 3)(x + 1) = 0$

Ex. 4 - AC Method aka Split the Middle REVIEW

$$ax^2 + bx + c$$

$$2x^2 + 7x + 6$$

Multiply $a \cdot c$. Find factors of ac that also add to b .

$$\underline{2 \cdot 6 = 12}$$

$$\underline{b = 7}$$

$$1 \cdot 12$$

$$1 + 12 = 13$$

$$2 \cdot 6$$

$$2 + 6 = 8$$

$$3 \cdot 4$$

$$3 + 4 = 7$$

Both (+) because multiplying to (+) and adding to (+)

$$2x^2 + 3x + 4x + 6$$

Split the bx term into the like terms using the numbers you found.

$$x(2x + 3) + 2(2x + 3)$$

Pull out the GCF from the left 2 terms and from the right 2 terms.

$$x(2x + 3) = 2x^2 + 3x \quad 2(2x + 3) = 4x + 6$$

$$(x + 2)(2x + 3)$$

Your two binomials come from what's the same and what's leftover.

Ex. 5 Find the roots of the quadratic equation.

$$f(x) = 3x^2 - 8x + 4$$

Steps

1) Set the function = 0.

2) Factor the function.

3) Set each factor = 0.

4) Solve each equation.

5) Write your roots/zeros as a solution set.

**You can also write the x -intercepts as ordered pairs.

You Try 6 Find the zeros of the quadratic function.

$$y = 12x^2 - 5x - 2$$